Construction Policy Bulletin

CPB 04-4 **Use of Tapered Notched Wedge Device for Longitudinal Joints on Asphalt Concrete Pavement**

References: *Standard Specifications* Section 39-6, "Spreading and Compacting"
Construction Manual Section 4-3903B, "Street Operations"

Effective Date: September 1, 2004

Approved: for ROBERT PIEPLOW, Chief
Division of Construction

Approval Date: August 31, 2004

Background

The Department has developed new specifications for asphalt concrete that allow contractors to use a tapered notched wedge device to install a tapered longitudinal joint at the paving edge between traffic lanes. By using the device, a contractor may place a lift of pavement 45-75 mm thick. The tapered edge condition provides for public traffic to safely cross over the longitudinal joint with minimal impact on vehicles.

The option of placing a lift up to 75 mm thick with a tapered longitudinal joint is an improvement to requirements that limit paving thickness to 45 mm if a vertical edge is left in place between traffic lanes. The guidelines regarding vertical edge depth were established in a memorandum from the chief engineer to district directors, dated October 28, 1991. Before the tapered joint option, contractors could only pave lifts thicker than 45 mm if all adjacent lanes were paved in one work window.

Paving contractors can be more productive by paving lifts thicker than 45 mm and paving one lane continuously rather than all adjacent lanes during one work window. When paving all lanes, the contractor typically must stop the paving operation in a lane, pick up and reset the traffic control, move paving equipment back to where the paving started, and resume paving in the adjacent lane. In addition, the contractor installs more transverse joints when short lengths of roadway are paved. Multiple traffic control setups increases the potential for motorist confusion and traffic congestion.

Existing Procedure

The October 28, 1991 guidelines and existing specifications allow the contractor to leave a 45 mm or less longitudinal vertical edge between adjacent lanes open to public traffic in place for up to 7 days.

New Procedure

The specifications and Sheet P70 of the *Standard Plans* provide requirements for use of the tapered notched wedge device to install a tapered longitudinal joint between traffic lanes. The contractor may

pave a lift 45-75 mm thick in one lane and then open that lane and adjacent lanes to public traffic until the next work window, within one day. The device is limited to use on divided highways.

The contractor attaches the tapered notched wedge device to the side of a standard screed. Behind it is a simple compacting device comparable to a sod roller. Some contractors have added a compaction roller that attaches to the finish roller to compact the wedge after paving. When the contractor places new asphalt concrete pavement on the adjacent lane, material placed on the top half of the taper tends to warm up the lower portion placed the previous work shift. The result is a well-compacted joint.

Inquire at the beginning of the project whether the contractor intends to use the tapered notched wedge device, since its use is optional. Contact Materials Engineering and Testing Services (METS) for technical support if the contractor plans to use the device.

The contractor must test the tapered notched wedge for relative compaction. The testing procedure is fully described in the specifications for the tapered notched wedge included in the project's special provisions.

The contractor must perform a nuclear gage test at the centerline of the completed longitudinal joint once every 200 meters. In addition, two 6-inch cores are taken every 1000 meters. The cores help to determine the actual density for calculating the relative compaction of the joint. The contractor must collect two additional 6-inch cores every 3000 meters in the mat adjacent to a core taken in the joint. The cores in the adjacent mat are for reporting only. The resident engineer tests the mat cores for comparison to the cores taken at the joint. The contractor must properly handle and package all cores before delivery to the resident engineer.

After acceptance of the contract, submit a paper copy or email a completed spreadsheet that includes all compaction and core information to the Office of Pavement Rehabilitation (OPR), METS, Mail Stop #5.

The construction engineer ensures that the resident engineer and field staff are properly trained on use of the tapered notched wedge device, are enforcing the tapered notched wedge specifications, are completing the necessary testing, and are forwarding the appropriate information to METS.

The standard special provisions for the tapered notched wedge option are available via the internet at the following address:

http://www.dot.ca.gov/hq/esc/oe/conststand.html

SSP number 39-050 is for projects with quality control / quality assurance for asphalt concrete. SSP numbers 39-010 and 39-120 are for projects without quality control / quality assurance for asphalt concrete.

Sheet P70 of the *Standard Plans* showing details for the longitudinal tapered notched wedge joint is attached to this bulletin.

If you have questions or comments about this construction policy bulletin, please contact Jim Cotey, Office of Construction Engineering, at (916) 657-5170, or via e-mail at Jim_Cotey@dot.ca.gov.

Attachment